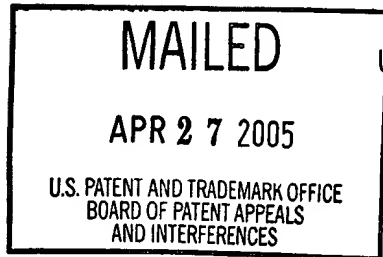


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.



UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte SHUSOU WADAKA, KOICHIRO MISU, TSUTOMU NAGATSUKA,  
TOMONORI KIMURA, and SHUMPEI KAMEYAMA

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Appeal No. 2005-0185  
Application No. 09/202,070

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HEARD: April 21, 2005

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Before KRASS, BLANKENSHIP, and NAPPI, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

#### DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 2-14 and 42-46.

We reverse.

## BACKGROUND

The invention relates to a wafer that comprises a plurality of acoustic wave devices. Components are modified to adjust for variations in wafer material (e.g., thickness). Representative claim 42 is reproduced below.

42. A wafer having a plurality of acoustical wave devices formed thereon and exhibiting common operational characteristics, each of said acoustical wave devices comprising:

a ground electrode formed on the wafer;

a piezoelectric thin film formed on the ground electrode, wherein the piezoelectric thin film varies in at least one characteristic across the wafer; and

at least one upper electrode formed on the piezoelectric thin film;

wherein at least the ground electrode, the piezoelectric thin film and the at least one upper electrode form components in each of the plurality of acoustical wave devices; and

wherein at least one component in some of the plurality of acoustical wave devices is modified in its operational characteristic to compensate for the variation in the at least one characteristic of the piezoelectric thin film and is based on the location of the at least one acoustical wave devices on the wafer.

The examiner relies on the following references:

Curran et al. (Curran)	3,401,275	Sep. 10, 1968
Krishnaswamy et al. (Krishnaswamy)	5,185,589	Feb. 9, 1993
Vale et al. (Vale)	5,194,836	Mar. 16, 1993
Ishii et al. (Ishii) (Japanese Kokai Patent Application) <sup>1</sup>	5-259804	Oct. 8, 1993

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<sup>1</sup> With English translation provided by the USPTO, Oct. 1995.

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Claims 2-14 and 42-46 stand rejected under 35 U.S.C. § 102 as being anticipated by Krishnaswamy, Curran, Vale, or Ishii.

Claims 1 and 15-41 have been canceled.

Claims 47-62 have been withdrawn from consideration.

We refer to the Final Rejection (mailed Mar. 18, 2002) and the Examiner's Answer (mailed Dec. 31, 2002) for a statement of the examiner's position and to the Brief (filed Oct. 17, 2002) and the Reply Brief (filed Feb. 27, 2003) for appellants' position with respect to the claims which stand rejected.

### OPINION

Each of the examiner's rejections of the claims under 35 U.S.C. § 102 appears to be based on two alternative rationales. First, the examiner discounts the final "wherein" clauses of the independent claims as having no patentable weight. Second, the examiner argues that even if the recitations represent structural limitations, the method and intent in effecting the structures do not result in an apparatus that is different from the prior art.

We consider claim 42 to be representative, which is similar to the other independent claim on appeal (claim 45). The language of claim 42 appears clear enough in relating to structure. The first "wherein" clause further limits the "piezoelectric thin film," in that the thin film "varies in at least one characteristic across the wafer...." The claim thus requires of the thin film a variation in some characteristic across the

wafer. Dependent claim 43 specifies such a characteristic -- thickness. Claim 42 also recites that at least one component (formed of a ground electrode, the piezoelectric thin film and "at least one" upper electrode) is modified in its operational characteristic to compensate for the variation in the at least one characteristic of the thin film and is "based on the location of the at least one acoustical wave devices on the wafer." The "at least one acoustical wave devices on the wafer" lacks proper antecedent in the claim. However, the final "wherein" clause of claim 42 requires, at the least, that a component in some (one or more) of the acoustical wave devices is modified to compensate for the variation in the characteristic of the thin film and is based on the location of an acoustical wave device on the wafer.

We consider it error to disregard language that further describes and limits structures positively recited in the claim. We find that the above-noted "wherein" clauses further limit structure in the claim. The second question, however, relates to how the further limitations may distinguish over the prior art.

We are in general agreement with the examiner's alternative position, suggested at page 4 of the Answer, to the extent that it relates to claim interpretation. In terms of claim 42, we agree with the examiner that it does not matter whether the modification occurs during initial manufacturing steps or after formation of the wafer and its components.

The examiner submits that, to compensate for deviations in manufacture, "resonator chips" may have material added or deleted for the purposes of a corrected or

final tuning. If the examiner's assertion applies to correcting the tuning of an acoustical wave device in the production of a plurality (i.e., at least two) acoustical wave devices on a single wafer, we do not see how claim 42 might distinguish. A modification after initial manufacture of the wafer would also be based on the location of an acoustical wave device, because the variation in the characteristic (e.g., variation in thickness) at that location would be the reason for effecting the modification at that location.

However, we cannot sustain the rejections because, although the examiner has provided references purported to show the claimed structure, the examiner has not pointed out any teachings in the supplied evidence in support of the assertions regarding modifications of the structures that, as we speculate, might show instant claim 42 to be anticipated. We are thus unable to point to concrete evidence in this record in support of the examiner's findings. Cf In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) (in a determination of unpatentability "the Board must point to some concrete evidence in the record in support of...[the]...findings").

Moreover, as we have suggested, it is unclear exactly what the examiner is asserting, and thus whether the assertion may apply to the instant case. As appellants note, the claims are drawn to a wafer (having at least two acoustical wave devices), rather than to a discrete acoustical wave device. Since the rejections are based on an alleged lack of novelty, whether material may have been added or removed from discrete devices in the prior art would be irrelevant. Further, the rejection does not

even allege that any of the references show a piezoelectric thin film formed on a ground electrode of a wafer that varies in at least one characteristic across the wafer.

The instant specification (§ bridging pages 11 and 12) indicates that in “standard” processes, adjustment of frequency was needed to overcome the variation in the thickness of piezoelectric thin film and film formed on the metal electrode. The statement may be consistent with the hypothetical prior art not provided by the examiner, but does not have the specificity of instant claim 42. Further, appellants admit (Reply Brief at 3) that in the prior art corrections to the acoustical wave devices have been accomplished by modifying each acoustic wave device once they have been manufactured. That admission also lacks the specificity required by instant claim 42; i.e., may apply to discrete devices in the prior art, rather than to wafers embodying two or more acoustical wave devices. At page 3 of the Brief, appellants submit that “[a]djusting the material thickness at the different locations for the devices which are not producing the correct frequency range, becomes very costly and burdensome.” However, there is no statement relating to an admission of prior art; e.g., that the ordinary artisan knew of adjusting material thickness at different locations on a wafer for correcting frequency.<sup>2</sup>

The rejections appear to ignore the limitations of the dependent claims -- not addressing any claim in particular -- and thus fail to establish anticipation for at least the

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<sup>2</sup> We add, however, that under 37 CFR § 1.56 appellants and their attorneys have an affirmative duty to disclose information to the Office that is known to be material to patentability with respect to any claim in the application.

dependent claims. The rejections applied against the dependent claims could be reversed on that basis alone. However, since the rejections fail to set forth a case for prima facie anticipation for the subject matter of the independent claims, we do not sustain any § 102 rejection applied against any claim.

## CONCLUSION

The rejection of claims 2-14 and 42-46 under 35 U.S.C. § 102 is reversed.

REVERSED

ERROL A. KRASS  
Administrative Patent Judge

**HOWARD B. BLANKENSHIP**  
Administrative Patent Judge

**ROBERT E. NAPPI**  
Administrative Patent Judge

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